



INSTRUCTION MANUAL

ROADWAR EUROPA

EmuMovies

CUSTOMER SUPPORT
(612) 537-4085



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GETTING STARTED: Answers to special game questions.

How many months does the winter season last? B. 3
What is the first terrain listed under overland movement? C. Plains
The last player note concerns what? C. Winning
___ is the country of the first city in the list of cities. B. Turkey
What is the basic mass of a tractor? A. 10
What is the basic braking of a motorcycle? B. 2
Healers are the remnants of the ___ community. C. Medical

ROADWAR EUROPA™

I OBJECTIVE

You lead a gang of trained men in specially prepared vehicles through the bio-war remains of devastated Europe. Scout cities to find the hidden nuclear devices and disarm them. Search out agents of the anti-terrorist underground and obtain clues on the whereabouts of the terrorist's headquarters. Once you've disarmed all of the bombs, find the headquarters and engage the terrorist leaders in a climactic battle to decide the future of all Europe!

II GETTING STARTED

A. Booting Instructions

1. Commodore Family. Turn on the computer and disk drive. On the Commodore 128 hold down the Commodore Key while turning the computer on to put the computer into C64 mode. Insert the game disk into the disk drive with the side 1 facing up. Type LOAD"*",8,1 and press RETURN/ENTER. Put your joystick in port 2 to direct movement.

3. IBM and Compatibles. Start your computer with the DOS diskette. If you don't have the A prompt (A>) type A and press RETURN/ENTER. You should use your DOS Copy utility to make a copy of your game disk before play. Put your original game disk aside and play on your copy. If you want to save a game you must format a save game disk with your DOS Format utility. To begin ROADWAR EUROPA type START and press RETURN/ENTER.

After the title screen select what kind of monitor you'll use. Then, select which keyboard setup you'll use for movement. The number two selection allows you to use the arrows on the keyboard to move up, down, left and right and the Home, End, PgUp, and PgDn keys to move diagonally.

The computer then displays a section of the ROADWAR EUROPA map and asks if you wish to adjust the horizontal placement of the screen on your monitor. If you answer with a Y you can center the map on your screen.

Next, you can change the color set if the default colors don't look good on your screen. Throughout the game you can change the color set or adjust the map by pressing Y. This also allows you to adjust the length of time messages are displayed onscreen (1 = short delay. 9 = long delay)

B. Resuming a Saved Game

Type Y at the "resume saved game" prompt and follow the instructions on screen.

C. Using Your Roadwar 2000 Gang

Type N at the "resume saved game" prompt and Y at the "use your Roadwar 2000 gang" prompt. Follow the instructions on screen.

D. Starting a New Game With a New Gang

Type N at the "resume saved game" and the "use your Roadwar 2000 gang" prompts. Then build your gang and its vehicles.

E. Creating a Gang

To create your gang you design your vehicles, select your gang members and allocate your supplies.

1. Construction Points. You begin with 15,000 construction points to purchase and modify up to six vehicles. Each vehicle archetype has a base construction point cost. Select a vehicle archetype and the computer displays the vehicle's attributes. Three numbers are listed for each attribute: the attribute's minimum value, maximum value and current value. You expend construction points to improve an attribute. The cost is based on the vehicle's mass and the attribute.

2. Selecting an Archetype. Each archetype represents a vehicle as listed on the vehicle chart (see Section VI, Vehicles). The cost of each archetype is based on these starting values. The vehicle may be incorporated into your gang as purchased or it may be modified using your editor.

3. Vehicle Classes. All archetypes are divided into three classes: open, convertible and hardtop.

- a. Open Vehicles - motorcycles, side cars, tractors and construction vehicles. Open vehicles have no topside crew capacity and a maximum of five interior crew.
- b. Convertibles - all vehicles bearing the name plus all flatbeds and pickups. Convertibles have limited or no topside crew capacity.
- c. Hardtop - all other vehicles are hardtops and have no special crew limitations.

4. Vehicle Mass and Base Construction Value. After selecting an archetype, you may adjust the mass of the vehicle. In adjusting the mass, note that it's structure, crew capacity maximums, missile factor maximums, boarding factor maximums, and fuel consumption will change as well. As a result, the base points, current points and remaining point values near the bottom of the display will change as well. Take care in selecting the vehicle's mass. Once you have set the mass you may not return to make adjustments. To alter the vehicle's mass, enter the new value and press RETURN/ENTER. Type a new value to change the mass again, press x and RETURN/ENTER to proceed or A and RETURN/ENTER to return to the archetype menu.

5. Modifying Vehicle Attributes. After selecting the mass of the vehicle, you may improve the vehicle's attributes within the limits of it's minimum and maximum values and your remaining construction points. To modify any attribute, place the inverted asterisk cursor at the attribute. Enter U and press RETURN/ENTER to move the cursor up and D to move the cursor down. To change a value, enter the new value and press RETURN/ENTER.

One point of Structure, Tires, Maximum Speed, Crew, Missile Factors or Boarding Factors costs the vehicle's mass times ten Construction Points. Zero tires costs the vehicle's mass time fifty Construction Points. Thus, changing the Maximum Speed of a mass 15 bus from 8 to 9 would cost 30 Construction Points.

When you are satisfied with all the vehicle's attributes, press X and then RETURN (or ENTER) to proceed to the confirmation prompt. Here enter Y for Yes or N for No or X if you do not wish to add further vehicles to your gang.

Once you have all the vehicles you desire [maximum six], or have too few construction points left to buy another vehicle, you go to crew selection.

6. Selecting Crew. The number of manpower points available to purchase crew is equal to the total capacity of all your vehicles. Crew members cost manpower points according to their prowess: Armsmasters cost 5, Bodyguards 4, Commandos 3, etc. To change a value, press U and then RETURN/ENTER or D and then RETURN/ENTER to move the cursor up or down, respectively, until it is on the line of the type you wish to change. Enter the number of the crew of the given type and press RETURN/ENTER. When you are finished selecting crew, press X and then RETURN/ENTER to proceed to a confirmation menu and the supply section. Press A and then RETURN/ENTER at any time during selection to clear the screen to the initial crew display.

7. Selecting Supplies. The number of supply points available depends on the total carrying capacity of the gang's vehicles. All supplies cost one supply point per unit. Ammunition is carried free and is allocated at the rate of twenty-five rounds per firearm. All other procedures are similar to selecting new crew members. Press x and the RETURN/ENTER to proceed with the game or A and RETURN/ENTER to abort to the initial supply selection display. Press Y to confirm your selections.

8. Naming Your Gang. Type the name of your gang (up to twenty characters) and press RETURN/ENTER. Once you have selected the name of the gang, you'll be randomly placed in a city and the game will begin.

III COMMANDS

You control Roadwar Europa by typing one letter commands at various prompts. Not all commands are available at all prompts. Normally, all commands pertinent to each situation are available. For example, in the aftermath of road combat the D, G, and X commands are available. Don't hesitate to try a command at any prompt. If the command isn't available nothing will happen.

A)bandon Vehicle. Type the ID number of the vehicle you want to abandon at the prompt. That vehicle is abandon and your remaining vehicles are renumbered. Remember to check the new vehicle ID numbers before abandoning any other vehicles.

C)ity, Scouting. Type in how many members of each rank you send to scout the inhabitants of the city and to search for nuclear devices. Some members may not return. A successful scouting mission tells you who controls the city. Any scouting mission will find a nuclear device and disarm it.

D)rop Supplies. Type in how many units of Food, Tires, Fuel, Guns and Medical Supplies you want to drop. Dropped supplies may not be reclaimed.

E)mpire Status. The computer displays the cities you control, the number of cities destroyed by the nuclear weapons, and various other information you'll find as you play the game.

F)ix Tires. Your gang takes the time to use spares to replace destroyed tires on your vehicles

G)ang Status Report. This report contains two different reports: the Gang Status Report and a Vehicle Status Report for the gang's vehicles.

Note: A similar display is used in deploying your gang before detailed road combat.

GANG STATS

THE ROLLERS [1]	MAX VEHICLES: 15 [2]	1) Gang Name
	VEHICLES NOW: 2	2) Number of Vehicles in Gang
TOTAL CAPACITY: 1960		3) Health of Gang
PASSENGER CAPACITY: 202	HEALTHY [3]	4) Fuel consumed in 1 move on overland map.
FUEL CONSUMPTION: 21	[4]	5) Supply Display. An asterisk (*) or highlight indicates a special item (food supplements, snow tires, or fuel additives).
FOOD: 910	*	6) Total carry capacity used.
TIRES: 50	* [5]	7) Cronies and the RDF are listed here.
FUEL: 700	*	8) Gang members listed by rank, Armsmaster through Escort.
AMMO: 5000		
GUNS: 200		
MEDICAL SUPPLIES: 100		
ANTITOXIN: 0		
TOTAL SUPPLIES: 1960 [6]		
DOCTOR DRILL SERGEANT POLITICIAN [7]		
CREW [A/B/C/D/E]: 13/18/23/0/0 = 54 [8]		
PRESS ANY KEY TO CONTINUE, X TO EXIT		

VEHICLE STATS

VEHICLE 1 [1]	BUS [2]	1) Vehicle ID number
STRUCTURE: 45/45		2) Vehicle Type
MANEUVERABILITY: 3/3		3) Vehicle Stats. The numbers listed with a slash show present/maximum values.
BRACING: 3		Weapon type is C (crossbow) or F (firearm). Speed is in 10's of MPH.
ACCELERATION: 3		4) missile protection factors for Left, Right, Front, Back, and Top.
WEAPON TYPES: C/-		5) The maximum crew inside and on top of the vehicle and the number currently assigned to each according to rank, Armsmaster through Escort. When you get into detailed combat you'll allocate the rest of your troops to the vehicles.
TIRES: 0/0		
SPEED: 7/10		
FACING: 0 [3]		
PROTECTION [L/R/F/B/T]: 4/4/4/3/4 [4]		
INTERIOR CREW CAPACITY: 51		
INTERIOR CREW QUALITY: 1/0/0/0/0		
TOPSIDE CREW CAPACITY: 51		
TOPSIDE CREW QUALITY: 0/0/0/0/0 [5]		
PRESS < OR > TO CHANGE VEHICLE, G FOR GANG STATS, OR X TO EXIT		

H) Heal Sick with Antitoxin. Heals 50 gang members for each unit of Antitoxin used. All of your gang members must be healed at the same time or the inoculated will be reinfected.

I) Initialize Save Game Disk. Follow the on screen instructions to format a blank disk to save the game on. This command does not format a disk on the IBM version of Roadwar Europa. Follow the Getting Started instructions

on formatting a disk to save a game.

K) Check Contents of Cache. Displays the amount of supplies your gang has previously cached in this city.

L) Loot, Search for. Searches the area you're in for usable items. Searching for loot has a chance for success everywhere but in the forest or desert.

M) Manpower Report. Displays the number of gang members of each rank.

P) People, Search for. Searches the area for people. Usually leads to footgang encounters.

Q) Quit Game.

R) Recall Saved Game. Recalls a saved game and resumes play from the previous position. Remember to save your game to a separate disk before recalling a saved game or your current position will be lost.

S) Save a Game To Disk. Saves your current position on a previously formatted disk and resumes play. The save game disk must already be formatted using the I command. You can only save one game to disk.

T) Transfer supplies to/from Cache. Transfer supplies among the vehicles. You can only transfer supplies when the gang is in the city.

U) Use Radio Direction Finder. If you pick up a RDF you can use it to help track down the terrorist headquarters.

V) Vehicles, Search for. Searches the area for usable vehicles. This is an important means of finding new vehicles.

W) Damage Report. Displays damage status of vehicles during the Movement of Fire portions of detailed combat. In the C-64 version press V to display a Damage Report.

X) Examine Supplies. Displays the summary of supplies carried by the gang.

Number Keys (1-8). Moves the gang one space in the indicated direction on the overland map. The Commodore directional rosette is printed on the map of Europe. In Figure II the Commodore uses the first set of numbers to indicate direction. The IBM uses the second set of numbers on the keypad to indicate direction.

Commodore,	8 1 2
IBM,	7 8 9
	4 * 6
Figure II	1 2 3

IV OVERLAND MOVEMENT

Move overland by pressing a number key representing the direction you want to go. Each movement on the overland map represents travel of fifty to seventy-five miles.

A. Overland Terrain

1. Plains. Plains represent rangeland and other rural terrain not primarily used for agriculture. Roads are few and of poor quality and travel is slow. Establishments are few and far between. People are scarce.
2. Farmland. Farmland represents land primarily used for agriculture. Roads are poor, slowing travel. Farms are very common and road gangs sometimes raid for food. Other people are scarce.
3. Desert. Desert represents terrain which is barren and has no roads to speak of. Little life exists in the desert and to run shy of fuel is to perish.
4. Woods. Areas of virgin forest have few roads, no habitation worth mentioning. Be sure of fuel.
5. Mountains. Mountains are very rugged terrain with no roads. Travel is very difficult.
6. Wilderness. Rugged and forested land untouched by man. Passage is impossible.
7. Water. You may be the savior of Europe, but you can't drive on water.
8. Roads. Large autobahns and multi-laned highways. Not all were left in tact by the war. Many small towns dot their length so road gangs find sufficient supplies. Travel is rapid.
9. Cities. Come in three sizes-Cities, Large Cities and Very Large Cities. Cities had populations of over a hundred thousand inhabitants. Large Cities had populations of over one million. Very large cities had populations of over five million. The cities are the stomping grounds of a wide variety of social groups. Supplies are plentiful but can be exhausted. The larger the city, the more inexhaustible the supplies. Travel is no problem due to the multitude of highways and byways which allow easy bypass of streets choked with wrecks and abandoned vehicles.

10. Oilfields. Areas where petroleum was king. Some are offshore and inaccessible. Road gangs battle daily for access to the vast supplies of fuel available there.
11. Swamp. Swamp represents tracts of land which are soft and treacherous. Travel is impossible.
12. Devastated Areas. These cities destroyed by nukes are unpleasant at best. There is little to be gained in these places. Mutants are a constant danger.
13. Coasts, Small Islands, Cays and others. These consist primarily of water.

B. Winter

December, January and February bring unpleasant road conditions over all but the most southern portion of the map. Operations are slowed to a crawl under these conditions.

V VEHICLES

A. Vehicle Attributes

The basic attributes of all vehicles are summarized on the Vehicle Table. Those attributes not listed in the vehicle status report available during play can never be modified during play. Those attributes listed on the status report may be modified during play.

1. Mass. Capacity and weight of a vehicle. Important when you ram the enemy.
2. Structure. The amount of damage the vehicle can take before being destroyed.
3. Maximum Speed. The maximum speed of the vehicle in MPH. Maximum speed can be reduced by the loss of tires during combat.
4. Maneuverability. The base number of turns a vehicle can make before each move. High speed and loss of tires will reduce maneuverability.
5. Braking. A vehicle can slow down ten MPH per Braking Factor each move.
6. Acceleration. A vehicle can speed up ten MPH per Acceleration Factor each move.
7. Missile Factor. The maximum number of crew which may fire through each facing of a vehicle.
8. Missile Protection. The amount of cover the vehicle affords against enemy fire through each facing. 0 is none, 5 is total.
9. Volleys. The maximum number of times a vehicle's crew may fire each fire phase.

VEHICLE TABLE

								MISSILE		WEAPON		BOARDING		CREW				
								PROTECTION		FACTOR		FACTOR		CAPACITY				
VEHICLE	SIZE	MS	ST	WE	MR	BR	AC	L/R	F	B	L/R	T	B	INT	EXT	FUEL	CARRYING	BASE
Motorcycle*	S	1	3	100	4	2	2	2	2	2	0	2	0	2	0	1	5	73
Sidecar*	S	2	5	60	4	2	3	3	3	0	1	2	3	1	0	1	20	176
Compact Conv.	S	3	8	80	3	2	3	2	2	1	1	1	4	1/2	0	2	45	273
Compact H.T.	S	3	8	70	3	2	4	4	4	2	2	2	4	0/1	2	4	2	45
Midsize Conv.	M	5	13	90	2	2	3	2	3	1	1	1	4	2/3	0	3	125	490
Midsize H.T.	M	5	13	80	2	2	4	5	6	2	2	2	0	5	6	3	125	625
Sports Car Conv.	S	4	10	120	3	2	3	2	3	1	1	1	4	2/3	0	2	6	40
Sports Car H.T.	S	4	10	120	3	2	4	4	4	2	2	2	4	0/1	2	4	4	80
Station Wagon	M	6	15	80	2	2	6	5	6	2	2	2	4	2/3	3	8	9	3
Limousine	M	8	20	100	2	2	6	5	6	2	2	2	4	1/2	3	8	9	4
Van	M	7	18	70	2	2	8	5	6	2	2	2	4	0/3	3	11	12	3
Pickup Truck	M	9	23	80	2	2	6	4	3	1	2	1	4	4/5	0	3	14	2
Offroad Conv.	M	6	15	70	2	2	2	2	2	1	1	1	4	1/2	0	2	4	0
Offroad H.T.	M	6	15	70	2	2	3	3	3	2	2	2	4	0/1	2	4	2	4
Bus	L	14	35	70	1	1	1	26	3	5	2	2	6	0/2	0	51	51	10
Tractor*	M	10	25	40	2	1	3	3	3	0	1	0	0	2	0	2	3	0
Construction Veh*	L	18	45	30	2	1	4	4	4	0	1	0	0	3	0	3	4	0
Flatbed Truck	L	16	40	80	1	1	1	14	4	0	2	0	14	6/7	0	4	51	2
Trailer Truck	L	20	50	80	1	1	1	14	4	8	5	2	18	0	10	5	51	50

Abbreviations:

- MS = Mass
 ST = Structure
 MX = Max Speed in MPH
 MN = Maneuverability
 BR = Braking
 L/R = Left or Right Facing
 F = Front Facing
 B = Back Facing
 T = Topside Facing

AC = Acceleration

Missile Factor is the number of crew which can fire in a given direction.
Missile Protection Factor is the armor protecting the interior crew.
It may be improved. Top armor starts at zero.

TRS = The number of tires the vehicle uses. 'O' indicates treads which may not be destroyed.

Fuel = The amount of fuel consumed by the vehicle during strategic movement. Twice this value may be carried in it's tanks.

* = May fire one volley only during any fire phase.
All other vehicles may fire two volleys if crew permits.

Size = The facing icon used to represent a vehicle in tactical combat is dependent on the size of the vehicle.

10. Tires. The maximum number of tires a vehicle possesses. Vehicles with O tires have treads or solid tires that do not blow out.

11. Boarding Factors. The maximum number of crew which may board an enemy vehicle through that facing.

12. Interior Crew Facing. The maximum number of crew that may ride inside the vehicle.

13. Topside Crew Capacity. The maximum number of crew which may ride atop the vehicle.

14. Fuel Consumption. The amount of fuel the vehicle requires to move overland one space. The vehicle may carry fuel equal to twice it's fuel consumption in the fuel tanks without affecting carrying capacity.

B. MAINTENANCE

1. Structural Damage. Vehicles sustain structural damage when they're hit in combat. This damage will only be repaired at various body shops you'll find while looting.

2. Flat Tires. Tires lost during combat must be repaired. Flat tires are replaced to the limit of the number of spares your gang is carrying.

C. IMPROVEMENTS

Vehicles may be improved during play by the discovery of certain special locations while searching for loot. Some enemy road gangs may drive improved vehicles in Tactical Combat by boarding and eliminating enemy crews.

VI SUPPLIES

Supplies are obtained by searching for loot and by defeating enemy groups.

A. Carrying Capacity

The carrying capacity of your gang is a function of the mass of the vehicles. All supplies except ammo require a capacity equal to the number of units carried. Ammo requires no capacity to carry. Fuel equal to two times each vehicle's fuel consumption may be carried at no cost in capacity.

B. Consumption

Every night each member of your gang consumes one unit of food. Each time your gang moves, each vehicle consumes fuel equal to it's fuel consumption. Healers require various amounts of medical supplies in exchange for their services. Tires are consumed in repairing battle damage. Every time a member fires a gun one round of ammo is expended.

C. Cache

You may stash up to two hundred fifty-five units each of food, tires, fire-arms, fuel and medical supplies in each city. Supplies may be freely transferred between your gang's supplies and your cache while in that city.

D. Special Supplies

There are three special kinds of supplies that your gang starts with: Food Supplements, Snow Tires and Fuel Additives. Food Supplements and Fuel Additives halve your consumption of these supplies. Snow tires increase your speed in the winter. You can lose your special supplies through a variety of ways and replenish them while searching for loot.

VII PEOPLE

A. Gang Members

1. Quality. Almost all people encountered will be rated Armsmaster, Bodyguard, Commando, Dragoon or Escort, in order of decreasing effectiveness. They are often referred to as A, B, C, D, and E troops. A member's quality reflects how likely he is to survive an event and his offensive and defensive powers in combat. After being in combat, some or all of your crew may promote to the next highest rating.

2. Recruiting. Gang members may be recruited by searching for people and sending envoys. The higher the quality of the prospect, the less likely they are to join your gang.

3. Cronies. These individuals can be of invaluable aid in your travels. Only one of each will travel with you. If another is encountered and you accept him into your gang, your current specialist will leave. Each of these individuals practices his trade with a varying degree of skill.

a. Doctor. A doctor reduces your casualties from disease, accidents and in foot combat. The better the doctor, the fewer the casualties. You must judge the effectiveness of his work.

b. Drill Sergeant. A drill sergeant increases the number of members who promote after combat and decreases your losses to desertion and recklessness.

c. Politician. A politician can serve as your envoy in footgang encounters and as a liaison with bureaucrats. He can even talk a lesser politician out of offering to join.

B. Encounters.

These are special encounters you may have while searching for people.

1. Agents. Agents of the anti-terrorists Underground may be encountered. They are unlikely to reveal themselves under normal circumstances. When they reveal themselves, take notes and follow their advice carefully.

2. Healers. Healers are the remnants of the medical community. Bound together by the common oath, they have gathered into informal research groups to aid the sick and injured and research remedies to disease. They ask to be supplied with medical goods. They heal all those who seek them. They have come up with anti-toxins which cure mutant infections. They live primarily in cities.

3. Foot Gang Commands. When you encounter a group on foot you have four options:

- Sending Envoys. A dangerous mission, but the best way to gain recruits. Showing strength can prove beneficial. A good politician may save you the trouble of sending troops.
 - Firing a Volley. This is the ultimate show of strength. It also tends to cause bad feelings among the recipients and can start a firefight.
 - Waiting. Waiting will be taken by some as a sign of weakness.
 - Leaving. A sign of weakness understood by all.
4. Foot Gangs. The different types of gangs you'll meet on foot include:
- Soldiers. Isolated units of military personnel. It is dangerous to quarrel with them, but it's seldom necessary as they are willing to join a good cause.
 - Hoodlums. A mixed lot of marginal character. Generally well led but poorly disciplined.
 - Home Guard. Poorly trained and equipped militia. Little better than armed rabble. Unpredictable.
 - Civilians. Mobs of cowering and inoffensive souls. Many are willing to join if you want them.
 - Cannibals. They are wily and fond of ambushing envoy parties. The scum of the earth.

5. Residents. In cities you'll encounter gangs like:

- Police. A few cities are still under the control imposed by civil authorities. They are well trained and well armed.
- Bureaucrats. Occasionally, local governments maintain control of their municipalities with the aid of the local law enforcement agencies. Passers-by are often charged tolls under threats of violence.
- Terrorists. Many cities are controlled by terrorists. They come in many forms: Regulars, Irregulars, Collaborators, Sympathizers, Provocateurs and the dreaded Terrorist Elite.
- Neutrals. These pleasant folk wish to live in peace. Anything they have is yours for the asking.
- Mutants. They are diseased, psychotic zombies who want to tear all healthy people to bits. They roam only at night. They are very quiet and very dangerous. They transmit their disease to their victims.

6. Road Gangs.

- Terrorist Patrols. Patrols of terrorists troops of varying quality roam the highways to stifle transportation. These patrols may be irregular

troops, regular troops are the feared Terrorist Special Battalions.

- Cannibals. They are poorly armed and led and easily dispatched.

VIII. ROAD COMBAT

A. Abstract Road Combat

In abstract road combat your vehicles fight on their own, you have no tactical choices to make. Combat is based on the mass of the vehicles on each side, with the advantage going to the larger vehicles and better crews. Check the condition of your vehicles after each abstract combat.

B. Crew Deployment

1. Auto-Deployment. The computer will place all your men into vehicles. They will be distributed as evenly as possible between the vehicles by quality of troops. Guns will be distributed to as many vehicles as possible. Following auto-deployment, you will have the opportunity to adjust your troop and weapon allocations.

2. Manual Deployment. You must allocate you men to vehicles manually, one man at a time. Type an A to allocate an Armsmaster to a vehicle, a B to allocate a Bodyguard, and so on. Type 1 or 2 to toggle between Firearms and Crossbows for the first and second volley. One half of the crew of each vehicle is considered to constitute a volley.

C. Quick Combat

1. Ram Ratio. Determines the size of enemy vehicles which you will ram. A ram ratio of one means you'll ram vehicles of equal or lesser mass. A ram ratio of two means you'll ram vehicles of half your mass or less and so on. A ram ratio of one half means you'll ram vehicles twice your mass.

2. Aiming Priority. This determines the percentage of your group's fire aimed at each location: topside, interior or tires. Each number must be from one to eight. The total of the three numbers must be exactly ten.

D. Tactical Combat

1. Deploying Vehicles on the Tactical Map

- Deployment Area. All vehicles must be deployed in spaces with an x coordinate of ten through nineteen. There is no limitation on the y coordinate.
- Restrictions. Vehicles may never be deployed on trees, rocks, fences, wrecks, water, or buildings. In farmland, vehicles may not deploy in mud or tilled fields. In cities and on highways, vehicles may only deploy on roads.

2. Movement on the Tactical Map

- Changing Speed. A vehicle may accelerate or brake in any one move, but never both. All changes in speed must be completed before a vehicle moves. Changing speeds may be interspersed with turning maneuvers.

b. Maneuvering. Maneuverability represents the number of forty-five degree turning movements it may execute before a move. This is reduced by tire damage and high speeds. A vehicle's maneuverability will be reduced by one when it's moving faster than thirty MPH, and by one for every additional thirty MPH. Reduction due to tire damage is proportional to the fraction of the tire lost. An unmoving vehicle may never be maneuvered. A vehicle moving at ten MPH may make as many turns as you like.

c. Moving Vehicles. Move straight ahead on a space at a time. Movement ends a vehicle's turn, therefore all speed changes and turning maneuvers should be completed before moving.

3. Terrain Effects

a. Speed Loss. All terrain except roads may cause a ten MPH loss of speed when entered.

b. Fishtailing. When a vehicle enters mud, there is a chance it will lose traction and swerve to a different facing.

c. Collisions. Vehicles which attempt to enter terrain such as rocks, oil derricks, trees wrecks fences will be halted and suffer damage.

d. Water. Driving a vehicle into water is a sure way to lose the vehicle and all aboard.

4. Ramming. Whenever a vehicle attempts to enter a space occupied by another vehicle (enemy or friendly) a ram occurs. Both vehicles will receive structural damage and either or both may be destroyed.

a. Structural Damage. The amount of structural damage incurred by each vehicle in a ram is dependent on the speeds, masses and relative facings of the vehicles. The faster the speeds, the greater the damage. Head-on rams are the most destructive, broadside rams are average and front to rear rams are the least destructive. In any ram, each vehicle will be damaged in inverse proportion to the ratio of it's mass to the mass of the other vehicle. All vehicles have reinforced front ends and therefore receive half damage if ramming or if rammed head-on.

b. Speed Alterations. A ram may cause either or both vehicles to speed up or slow down.

c. Overruns. If one vehicle involved in a ram outmasses the other by a great deal, the smaller vehicle may simply disintegrate with little effect on the larger vehicle.

5. Fire Combat

a. Volleys. In fire combat most vehicles may fire two volleys. Each volley must be fired through a different facing. If all men fire in the first volley, no second volley will be allowed.

b. Facing. Each volley a vehicle fires must be directed through either the left, right, front or back facing of the vehicle. This facing affects the number of men which may fire in a volley.

c. Line of Sight. Vehicles cannot see or fire through trees or buildings. To check the line of sight, press a facing key (L,R,F,B,) while holding the control key down.

d. Weapon Types. There are two types of projectiles, crossbows and guns. Crossbows have a maximum range of five spaces. Guns have a maximum range of ten spaces and are more accurate than crossbows at equal range. Both types suffer loss of accuracy due to range. Men armed with guns will resort to crossbows if all ammo is exhausted.